

# Welcome to your CDP Water Security Questionnaire 2019

## W0. Introduction

### W0.1

**(W0.1) Give a general description of and introduction to your organization.**

Micron is comprised of a team of visionaries and trailblazers, designing and building advanced semiconductor technologies. From mobile devices to connected automobiles, to supercomputers and cloud servers—our innovative memory and storage solutions are used in things that we depend on and use every day. They are foundational to the technological advancements that are changing how the world uses information. Today, we are a global leader in the semiconductor industry with a track record of innovation and industry advancement that includes over 26,000 patents. Our multinational diversity, manufacturing scale, and broad product portfolio enable us to advance new ideas and develop technologies that can transform what’s possible. Our broad portfolio of silicon-to-semiconductor solutions starts with foundational dynamic random-access memory (DRAM), NAND, and NOR Flash memory and extends to solid state drives, modules, multichip packages, and other semiconductor systems. We work with today’s leading brands and original equipment manufacturers (OEMs) to enable the world’s most innovative computing, consumer, enterprise storage, data center, mobile, embedded and automotive applications. Micron strives to build and operate sustainable world-class facilities around the world that enable excellence in safety, reliability, and cost. Through pollution prevention, reclamation, and recycling efforts, Micron strives to reduce the burden on air, water and land resources. Continuous improvement of our environmental performance is a long-term commitment. Visit [micron.com/environment](http://micron.com/environment) for more information. We take a proactive approach to environmental stewardship, occupational health and safety, and high-quality product standards. An integral part of this mission is a proactive approach to environmental compliance and protection that serves our team members, customers and communities in which we operate. Compliance with applicable environmental regulations is considered a minimum standard. Micron implements additional programs where appropriate to provide greater environmental performance and protection, demonstrating the responsibility it feels towards its local and global communities. Continuous improvement of our environmental performance is a long-term commitment of Micron’s business mission.

### W0.2

**(W0.2) State the start and end date of the year for which you are reporting data.**

	Start date	End date
Reporting year	January 1, 2018	December 31, 2018

## W0.3

**(W0.3) Select the countries/regions for which you will be supplying data.**

- China
- Japan
- Malaysia
- Singapore
- Taiwan, Greater China
- United States of America

## W0.4

**(W0.4) Select the currency used for all financial information disclosed throughout your response.**

- USD

## W0.5

**(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.**

- Companies, entities or groups over which operational control is exercised

## W0.6

**(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?**

- Yes

## W0.6a

**(W0.6a) Please report the exclusions.**

Exclusion	Please explain
Excluded non-manufacturing locations, including office-based activities (design, marketing, sales)	Water use is negligible (<<1%) compared to water use of our manufacturing sites.

## W1. Current state

### W1.1

**(W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.**

	Direct use importance rating	Indirect use importance rating	Please explain

Sufficient amounts of good quality freshwater available for use	Vital	Important	Semiconductor manufacturing is water-intensive process where each wafer used to make our products goes through a series of cleaning steps, which are dependent on ultra-pure water.
Sufficient amounts of recycled, brackish and/or produced water available for use	Important	Important	As semiconductor technologies have become more complex, demand for water has grown. Micron proactively manages water consumption by identifying opportunities to increase water efficiency and reduce raw water demand. Our manufacturing sites generate ultra-pure water from a combination of recycled water from our operations and local raw water resources.

## W1.2

**(W1.2) Across all your operations, what proportion of the following water aspects are regularly measured and monitored?**

	% of sites/facilities/operations	Please explain
Water withdrawals – total volumes	76-99	Water withdrawals (total volume) are tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Water withdrawals – volumes from water stressed areas	76-99	Water withdrawals (total volume) are tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Water withdrawals – volumes by source	76-99	Water withdrawals by source (Municipal water, Surface Water, Ground water, Rainwater) are tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Water withdrawals quality	76-99	Water withdrawals quality is tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices. Quality of incoming water is critical for an effective and efficient production of ultra-pure water for our manufacturing process.
Water discharges – total volumes	76-99	Water discharge volumes are tracked across all manufacturing locations (approximately

		99% of total water usage), except for the non-manufacturing offices.
Water discharges – volumes by destination	76-99	Water discharge by destination (Public sewer with POTW, Public sewer w/o POTW, Water body like river, sea, etc.) is tracked across all manufacturing locations (approximately 99% of total water usage), except for the non-manufacturing offices.
Water discharges – volumes by treatment method	76-99	Water discharge volume by treatment method is regularly monitored by site-level facilities team to verify capacity and efficiency of each treatment line.
Water discharge quality – by standard effluent parameters	76-99	Water discharge quality by standard effluent parameters is regularly monitored, reported, and documented by site-level environmental engineering team to ensure that we continuously comply with applicable standards/regulations.
Water discharge quality – temperature	76-99	Temperature of water discharged is regularly monitored at all manufacturing locations (>99% of total water discharge), except for the non-manufacturing offices.
Water consumption – total volume	76-99	Water consumption (total volume) is calculated across Micron manufacturing locations (approximately 99% of total water usage) , except for the non-manufacturing offices. based on water withdrawals (total in) minus water discharges (total out).
Water recycled/reused	76-99	Water recycled and reused is regularly monitored and reported across Micron manufacturing locations (approximately 99% of total water usage)
The provision of fully-functioning, safely managed WASH services to all workers	100%	All facilities have water supply, adequate sanitation and hygiene service for all workers

## W1.2b

**(W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?**

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	48,312	Higher	Increase due to the increased capacity
Total discharges	37,969	Higher	Increase due to the increased capacity, proportionally to the withdrawal increase
Total consumption	10,343	Higher	Increase due to the increased capacity, proportionally to the withdrawal increase

## W1.2d

**(W1.2d) Provide the proportion of your total withdrawals sourced from water stressed areas.**

	% withdrawn from stressed areas	Comparison with previous reporting year	Identification tool	Please explain
Row 1	47	Higher	WRI Aqueduct	We considered manufacturing locations in Singapore and China classified as HIGH RISK (3-4) by the WRI Aqueduct methodology. Updated risk assessment for CY2018 added a new manufacturing location as "High-Risk " leading to a % increase vs CY2017 figure

## W1.2h

**(W1.2h) Provide total water withdrawal data by source.**

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Relevant	719.1	Higher	Increased volume of rainwater collected and used

Brackish surface water/Seawater	Not relevant			source not used
Groundwater – renewable	Relevant	7,877.2	Higher	Capacity increased in 2018
Groundwater – non-renewable	Not relevant			source not used
Produced/Entrained water	Not relevant			source not used
Third party sources	Relevant	39,715.7	Higher	Water provided by Municipal water supplies. Capacity increased in 2018

## W1.2i

(W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	5,538	Lower	Increased reuse/recycle of water at locations discharging to river
Brackish surface water/seawater	Not relevant			
Groundwater	Not relevant			
Third-party destinations	Relevant	32,430.5	Higher	Total discharge to public sewer sent to further treatment at a public-owned wastewater treatment plant. Higher discharge as per increased capacity in 2018

## W1.2j

(W1.2j) What proportion of your total water use do you recycle or reuse?

	<b>% recycled and reused</b>	<b>Comparison with previous reporting year</b>	<b>Please explain</b>
Row 1	26-50	About the same	CY2018 company wide reuse/recycled rate was 50% compared to 51% in CY2017. Notwithstanding our expansions and production increase in 2017, Micron was able to keep about the same level of reuse/recycled water compared to the previous year.

## W1.4

### (W1.4) Do you engage with your value chain on water-related issues?

Yes, our customers or other value chain partners

## W1.4c

### (W1.4c) What is your organization’s rationale and strategy for prioritizing engagements with customers or other partners in its value chain?

We recognize that our manufacturing process is water-intensive and contributes to the global environmental impact of technology. We routinely meet with our customers to understand how we are performing from their perspective. Cross-functional teams review the outcomes of those conversations, as well as written customer requirement documents, and assess opportunities for improvement. A monthly meeting of executives and senior leaders drives accountability for the improvements we undertake in response to key customer expectations and requirements. We engage in several industry organizations alongside our customers, building industry consensus across a range of social and environmental issues specific to our industry – such as conflict minerals, supply chain labor standards and climate-related matters. This is why we partner with our customers to improve our water management program by implementing risk control measures and investing on water reduction-saving opportunities identified at all manufacturing locations.

## W2. Business impacts

### W2.1

#### (W2.1) Has your organization experienced any detrimental water-related impacts?

No

### W2.2

#### (W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

No

## W3. Procedures

### W3.3

#### (W3.3) Does your organization undertake a water-related risk assessment?

Yes, water-related risks are assessed

### W3.3a

#### (W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

##### Direct operations

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##### Coverage

Full

##### Risk assessment procedure

Water risks are assessed as part of an enterprise risk management framework

##### Frequency of assessment

Annually

##### How far into the future are risks considered?

1 to 3 years

##### Type of tools and methods used

Enterprise Risk Management  
International methodologies

##### Tools and methods used

COSO Enterprise Risk Management Framework  
Environmental Impact Assessment

##### Comment

Enterprise Risk Management (ERM) at Micron is a comprehensive program that uses risk information to formulate strategies, processes and decisions that enable the company to achieve its objectives. ERM establishes a unified approach to risk management that helps Micron achieve a shared understanding of risks and make informed business decisions. Water risks and overall Sustainability Risks are reported and managed as part of this process.

##### Supply chain

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##### Coverage

None

##### Comment



Micron has identified water risks during this reporting year, starting from risks connected to our manufacturing sites under its operational control.

**Other stages of the value chain**

**Coverage**

None

**Comment**

**W3.3b**

**(W3.3b) Which of the following contextual issues are considered in your organization’s water-related risk assessments?**

	<b>Relevance &amp; inclusion</b>	<b>Please explain</b>
Water availability at a basin/catchment level	Relevant, always included	Semiconductor manufacturing is a water-intensive process where each wafer used to make our products goes through a series of cleaning steps, which are dependent on ultra-pure water.
Water quality at a basin/catchment level	Relevant, always included	Incoming water quality is an important control spec to generate ultra-pure water and to support mechanical systems correct operation.
Stakeholder conflicts concerning water resources at a basin/catchment level	Not relevant, explanation provided	As of now, there are no significant conflicts with other stakeholders concerning water source at each relevant manufacturing location.
Implications of water on your key commodities/raw materials	Not considered	As mentioned earlier, we have not considered water risks in our supply chain
Water-related regulatory frameworks	Relevant, always included	Applicable regulations are always considered while assessing risks
Status of ecosystems and habitats	Not relevant, explanation provided	Status of ecosystems and habitats is not considered relevant at this point in time. Our manufacturing sites are not located in sensitive or protected areas.
Access to fully-functioning, safely managed WASH services for all employees	Relevant, always included	Access to fully-functioning, safely managed WASH services for all employees is a minimum requirement for all Micron locations.
Other contextual issues, please specify	Not relevant, explanation provided	There are no additional contextual issues other than the above ones.

### W3.3c

**(W3.3c) Which of the following stakeholders are considered in your organization’s water-related risk assessments?**

	Relevance & inclusion	Please explain
Customers	Relevant, always included	Micron takes into account customers' expectations and determines related compliance obligations where applicable and feasible.
Employees	Relevant, always included	in Micron water availability and quality for employees use is a minimum requirement
Investors	Relevant, always included	Investors are key stakeholders and always considered as contextual issue
Local communities	Relevant, always included	Local communities needs ad expectations are one of our contextual issues
NGOs	Not relevant, included	NGOs' needs and expectations are a potential contextual issues. As of now, NGOs have generally not interacted or communicated with Micron on water risks.
Other water users at a basin/catchment level	Not relevant, explanation provided	As of now, there are no significant conflicts with other users of the water source at relevant manufacturing locations.
Regulators	Relevant, always included	Regulators' needs and expectations (beyond regulatory requirement) are always considered when formally communicated. Interactions with regulators relate to current regulations and to potential future regulations impacting water use.
River basin management authorities	Not relevant, explanation provided	River basin authorities' needs and expectations are always considered when formally communicated. As of now, they have generally not interacted or communicated with Micron on water risks beyond what is required by law.
Statutory special interest groups at a local level	Not relevant, explanation provided	Not applicable
Suppliers	Relevant, not included	Supply Chain risks are not currently included
Water utilities at a local level	Relevant, always included	Water supply systems are always considered
Other stakeholder, please specify	Not relevant, explanation provided	No additional stakeholders have been identified besides the ones mentioned above

### W3.3d

**(W3.3d) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.**

Micron estimates water use projections at least once a year or as needed (e.g. major acquisitions, constructions,...). This estimate is compared against water availability, contract limits, physical limits (e.g., infrastructure) and political limitations (e.g., public commitments, goals, etc.) and actions are defined to ensure an appropriate support to our operations.

## W4. Risks and opportunities

### W4.1

**(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes, only within our direct operations

### W4.1a

**(W4.1a) How does your organization define substantive financial or strategic impact on your business?**

Micron uses a standard ERM process to ensure risks, including water-related risks, can be incorporated into decision-making. The ERM process is aligned with Micron's Strategic and Business Planning Process to ensure appropriate priorities are set and company strategic objectives are met. This creates a unified approach to identify, assess, prioritize, treat, monitor and report risks across the company. As part of the strategic planning process and day-to-day management of the business, internal and external risks that may affect the achievement of our objectives are identified. Water-related risks and overall sustainability risks spanning a 1-10 years time period are identified, assessed, prioritized, and managed as part of this ERM process. Information and communication channels are in place to make the organization aware of risks that fall into their area of responsibility.

Micron risk management personnel and subject matter experts assess these risks through their expertise, formal assessments and analysis of business intelligence and trends. Risks and opportunities are then prioritized based upon the overall risk exposure, considered as a function of likelihood (how likely is the risk to occur without treatment) and impact of the occurrence (how impactful is the risk without treatment). Micron leaders are accountable for managing risks affecting their area of responsibility. Risk management personnel are responsible for maintenance and governance of the ERM program, and support the identification, assessment, and reporting of risks to leadership for recommended actions. Each business unit and function communicates identified risks and associated treatments to their leadership teams. The leaders of these functions develop plans and direction for their organization to effectively align the treatment support to the objectives and priorities of the organization. Micron personnel are empowered to make decisions to prioritize risk treatments

that are within their span of control. However, all risks are elevated through the ERM process to identify themes across product lines, sites, and assets. This allows prioritization of risks across multiple locations and functions to receive appropriate attention and review by the Risk Committee on a quarterly basis or more frequently as needed.

Micron considers substantive financial impact as having the potential for severe and/or irreversible negative impact to Micron’s assets, credit liquidity, and/or share price. Water-related risks and opportunities are identified and prioritized by considering the following criteria: business continuity, impact to brand/reputation, relevance to regional operations, alignment with Micron business strategy, impact to communities, and compliance considerations.

One example of our risk/opportunity identification and management process includes the risk of enhanced reporting obligations. The likelihood of this occurring and how impactful it would be without treatment is evaluated to determine the inherent risk and then treatment details, including who, what, and when are determined and tracked to closure. The treatments for this example include monitoring water-related regulations and policy to understand and evaluate impacts to, and opportunities for, our business, customers, and the communities where we operate. When applicability is determined, an action plan is developed and monitored through execution.

## W4.1b

**(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?**

	Total number of facilities exposed to water risk	% company-wide facilities this represents	Comment
Row 1	6	26-50	Considered manufacturing facilities in countries/areas classified at HIGH RISK (3-4) as per the WRI Aqueduct Map. 4 sites in Singapore ,1 site in China, 1 site in Taiwan.

## W4.1c

**(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive impact on your business, and what is the potential business impact associated with those facilities?**

## W4.2

**(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.**

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**Country/Region**

Singapore

**River basin**

Other, please specify  
NewWater basin in Singapore

**Type of risk**

Physical

**Primary risk driver**

Rationing of municipal water supply

**Primary potential impact**

Reduction or disruption in production capacity

**Company-specific description**

Water is a critical input to our manufacturing process, particularly wafer fabrication, and any reduction in quantity or quality levels would cause a disruption to our manufacturing process, by either reducing capacity or even suspend operation.

Singapore is identified as high-risk area by the Aqueduct Water Risk map where Micron owns four manufacturing sites.

The size of Micron manufacturing capacity in Singapore and potential impact drives the magnitude of potential impact.

Reduced quality and quantity of incoming water might create disruption to our operation and in severe cases a reduction or suspension of production.

We could not identify a specific water basin applicable to Singapore

**Timeframe**

More than 6 years

**Magnitude of potential impact**

Medium-high

**Likelihood**

More likely than not

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure - minimum (currency)**

**Potential financial impact figure - maximum (currency)**

### **Explanation of financial impact**

Micron realizes that there is potential for financial impact. Potential financial impact is under review.

### **Primary response to risk**

Adopt water efficiency, water re-use, recycling and conservation practices  
Green design and system upgrades

### **Description of response**

Access to clean water sources is a human right recognized by the United Nations and it is also one of the primary resources used in the manufacture of semiconductors. Micron looks proactively for opportunities to manage water consumption in manufacturing operations globally on an ongoing basis. Our intent is to minimize the impact to this precious resource and maximize our business resilience as global water supply becomes increasingly constrained.

Particularly in Singapore, Micron has been incorporating water-saving measures at the design stage of the new buildings and industrial processes, and at the same time investing resources to improve the water use efficiency at the existing factories. In Singapore, we derive 96% of our water from rain capture, onsite recycling and NEWater supply. NEWater is a centralized treatment of used water that is repurposed for non-potable use, which helps reduce the demand on reservoirs for potable water

### **Cost of response**

1,250,000

### **Explanation of cost of response**

Micron invested resources to improve water systems efficiency of sites in Singapore in CY18 and the cost of response reported above reflects cost of implementation of such improvement projects.

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### **Country/Region**

China

### **River basin**

Huang He (Yellow River)

### **Type of risk**

Physical

### **Primary risk driver**

Rationing of municipal water supply

### **Primary potential impact**

Reduction or disruption in production capacity

### **Company-specific description**

Water is a critical input to our manufacturing process, particularly wafer fabrication, and any reduction in quantity or quality levels would cause a disruption to our manufacturing process, by either reducing capacity or even suspending operation.

China region where Micron's site is located is classified as high-risk area by the Aqueduct Water Risk map.

Compared to Singapore sites, the operation in China is less water-dependent, thus driving a lower severity.

**Timeframe**

More than 6 years

**Magnitude of potential impact**

Medium

**Likelihood**

More likely than not

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure - minimum (currency)**

**Potential financial impact figure - maximum (currency)**

**Explanation of financial impact**

Micron realizes that there is potential for financial impact. Potential financial impact has not yet been determined

**Primary response to risk**

Adopt water efficiency, water re-use, recycling and conservation practices  
Implement water saving/reuse/recycle

**Description of response**

Access to clean water sources is a human right recognized by the United Nations and it is also one of the primary resources used in the manufacture of semiconductors. Micron looks proactively for opportunities to manage water consumption in manufacturing operations globally on an ongoing basis.

Water is a key resource for our manufacturing process and Micron looks at water saving opportunities, starting from improving process efficiency to increasing the water recycle rate globally and particularly at locations with stressed water resources.

**Cost of response**

86,000

### **Explanation of cost of response**

Micron implemented additional water saving measures at its site in China by increasing the water reuse/recycle rate by a further 3% in CY2018 compared to CY2017 and the cost of response reported above reflects cost of implementation of such improvement projects

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### **Country/Region**

Taiwan, Greater China

### **River basin**

Not known

### **Type of risk**

Physical

### **Primary risk driver**

Rationing of municipal water supply

### **Primary potential impact**

Reduction or disruption in production capacity

### **Company-specific description**

Water is a critical input to our manufacturing process, particularly wafer fabrication, and any reduction in quantity or quality levels would cause a disruption to our manufacturing process, by either reducing capacity or even suspending operation.

With the annual update of the risk assessment, compared to CY2017 assessment, a specific Taiwan location where we operate has been evaluated as high-risk area by the Aqueduct Water Risk map.

The size of the manufacturing site in Taiwan and potential impact drives the magnitude of potential impact.

Reduced quality and quantity of incoming water might create disruption to our operation and in severe cases a reduction or suspension of production.

We could not identify a specific water basin applicable to the specific location in Taiwan

### **Timeframe**

More than 6 years

### **Magnitude of potential impact**

Medium-high

### **Likelihood**

More likely than not

### **Are you able to provide a potential financial impact figure?**

No, we do not have this figure

### **Potential financial impact figure (currency)**



**Potential financial impact figure - minimum (currency)**

**Potential financial impact figure - maximum (currency)**

**Explanation of financial impact**

Micron realizes that there is potential for financial impact. Potential financial impact has not yet been determined.

**Primary response to risk**

Adopt water efficiency, water re-use, recycling and conservation practices  
Water system upgrade

**Description of response**

Access to clean water sources is a human right recognized by the United Nations and it is also one of the primary resources used in the manufacture of semiconductors. Micron looks proactively for opportunities to manage water consumption in manufacturing operations globally on an ongoing basis. Our intent is to minimize the impact to this precious resource and maximize our business resilience as global water supply becomes increasingly constrained.

**Cost of response**

1,350,000

**Explanation of cost of response**

Particularly at this manufacturing site in Taiwan, Micron implemented additional water saving measures by increasing the water reuse/recycle rate by 5% in CY2018 compared to CY2017 and the cost of response reported above reflects cost of implementation of such improvement projects.

**W4.2c**

**(W4.2c) Why does your organization not consider itself exposed to water risks in its value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact?**

	Primary reason	Please explain
Row 1	Not yet evaluated	Impact of Water risks in the Supply Chain has not been evaluated yet

**W4.3**

**(W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes, we have identified opportunities, and some/all are being realized

## W4.3a

**(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.**

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**Type of opportunity**

Efficiency

**Primary water-related opportunity**

Improved water efficiency in operations

**Company-specific description & strategy to realize opportunity**

Over the past few years, Micron has implemented several projects to improve water use efficiency of the manufacturing process and of the facilities supporting systems (UPW plant, cooling tower, ...). For new constructions, Micron has been incorporating water-saving measures in the design stage for new buildings and industrial processes, at the same time Micron has made significant investments to improve the water use efficiency at the existing factories.

By improving water efficiency we also reduce operational costs, particularly in countries where water price is increasing.

**Estimated timeframe for realization**

1 to 3 years

**Magnitude of potential financial impact**

Medium

**Are you able to provide a potential financial impact figure?**

No, we do not have this figure

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**

**Potential financial impact figure – maximum (currency)**

**Explanation of financial impact**

Micron realizes that there is potential for financial impact. Potential financial impact is under review.

## W6. Governance

### W6.1

**(W6.1) Does your organization have a water policy?**

Yes, we have a documented water policy that is publicly available

### W6.1a

**(W6.1a) Select the options that best describe the scope and content of your water policy.**

	Scope	Content	Please explain
Row 1	Company-wide	Description of business dependency on water Description of water-related performance standards for direct operations Company water targets and goals Commitments beyond regulatory compliance Commitment to water-related innovation	Water Management program published in the Sustainability Report publicly available on the external website <a href="http://www.micron.com">www.micron.com</a> Company-wide EHS policy including the commitment to go beyond legal compliance, pollution reduction and prevention. EHS Policy is available on the external website <a href="https://www.micron.com/about/our-commitment/operating-thoughtfully/environment-health-and-safety-policy">https://www.micron.com/about/our-commitment/operating-thoughtfully/environment-health-and-safety-policy</a>

### W6.2

**(W6.2) Is there board level oversight of water-related issues within your organization?**

Yes

### W6.2a

**(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.**

Position of individual	Please explain
Board-level committee	Governance & Sustainability Committee

### W6.2b

**(W6.2b) Provide further details on the board's oversight of water-related issues.**

Frequency that water-related issues are a	Governance mechanisms into which water-related	Please explain
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	<b>scheduled agenda item</b>	<b>issues are integrated</b>	
Row 1	Scheduled - some meetings	Monitoring implementation and performance Overseeing acquisitions and divestiture Overseeing major capital expenditures Reviewing and guiding annual budgets Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy Setting performance objectives	At the direction of Micron’s Chief Executive Officer and President, our Sustainability Council, a team of senior leaders including the Vice President of Compliance and Sustainability, have responsibility for developing all aspects of the company’s sustainability strategy, with oversight and approval from an executive leadership team. Additionally, Micron’s Risk Committee, a team of senior leaders including the CFO, review and guide risk management objectives including water-related risks for operation. Our strategy is focused on how to improve the efficiency of water use by our operations. At the most senior level of the company, our board of directors Governance and Sustainability Committee is charged with oversight responsibility for all sustainability related matters, including water related issues.

### W6.3

**(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).**

**Name of the position(s) and/or committee(s)**

Sustainability committee

**Responsibility**

Both assessing and managing water-related risks and opportunities

**Frequency of reporting to the board on water-related issues**

Annually

**Please explain**

Micron’s Executive VP Operations has oversight responsibility of our facilities and their operations, including water use and related risks. One of their representatives sits on Micron’s Sustainability Council. The Sustainability Council is comprised of senior leaders representing the various aspects of sustainability, including supply chain, procurement, sales, and global manufacturing. The Sustainability Council monitors, among other things, water-related risks, and tracks progress towards goals. Micron’s Risk Committee monitors, among other things, water-related risks/opportunities

identification and actions. The Sustainability Council and the Risk Committee drive our strategy and improve the impact of our operations on water sources and community.

## W6.5

**(W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?**

Yes, trade associations

## W6.5a

**(W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?**

Micron has established an Environmental Policy Committee to review upcoming potential environmental issues and obligations (regulatory and from interested parties) and evaluate the company response within the relevant regional industry association to align with the company strategy.

This committee includes senior members of the key functions: the VP Compliance & Sustainability, Legal Department, Government Affairs, Global EHS, Supply Chain and Product Compliance.

Members have periodical meetings to review upcoming issues, assess the potential impact and define strategy to prevent and reduce any associated environmental risks, including water.

## W6.6

**(W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?**

No, and we have no plans to do so

## W7. Business strategy

### W7.1

**(W7.1) Are water-related issues integrated into any aspects of your long-term strategic business plan, and if so how?**

	Are water-related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water-related issues are integrated	5-10	Longest time horizons used for enterprise risk assessment when evaluating likelihood is up to 10 years

Strategy for achieving long-term objectives	No, water-related issues not yet reviewed, but there are plans to do so in the next two years		
Financial planning	No, water-related issues not yet reviewed, but there are plans to do so in the next two years		

## W7.2

**(W7.2) What is the trend in your organization’s water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?**

Row 1

**Water-related CAPEX (+/- % change)**

6

**Anticipated forward trend for CAPEX (+/- % change)**

300

**Water-related OPEX (+/- % change)**

2

**Anticipated forward trend for OPEX (+/- % change)**

18

**Please explain**

CAPEX has increased in CY18 vs CY17 but less than anticipated last year because of a shift of major constructions/expansions. Anticipated trend for CY19 significantly increased, mainly due to huge investments in water systems.

Main reasons for CAPEX increase over time is to support: capacity increase, new manufacturing sites under construction, enhancement/upgrades of existing water systems to increase efficiency and reliability as ongoing effort.

OPEX expense globally is quite stable in CY18, but an increase is expected in the future to support expansions and new operations.

## W7.3

**(W7.3) Does your organization use climate-related scenario analysis to inform its business strategy?**

Use of climate-related	Comment
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scenario analysis	
Row 1	Yes Micron has conducted an analysis of value at risk to the organization under a “business as usual” and a “2 degree C” scenario, using econometric modeling, facility valuations, and potential climate-related impacts to model potential financial impacts of climate change in 2020, 2030, and 2040.

### W7.3a

**(W7.3a) Has your organization identified any water-related outcomes from your climate-related scenario analysis?**

Yes

### W7.3b

**(W7.3b) What water-related outcomes were identified from the use of climate-related scenario analysis, and what was your organization’s response?**

	Climate-related scenario(s)	Description of possible water-related outcomes	Company response to possible water-related outcomes
Row 1	2DS	Results of the 2DS climate risk assessment show temperature extreme as one of the significant risks. Water related outcomes derive from a consequent decreased precipitation and increased temperatures, leading to potential increased water costs caused by water shortages.	Rationing of water has been identified as risk driver and related impact on production capacity. Company response to the potential shortage is the same described in section W4 Adopt water efficiency, water re-use, recycling and conservation practices

### W7.4

**(W7.4) Does your company use an internal price on water?**

Row 1

**Does your company use an internal price on water?**

No, and we do not anticipate doing so within the next two years

**Please explain**

## W8. Targets

### W8.1

**(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.**

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals	Goals are monitored at the corporate level	Micron defined a corporate goal to achieve a 10% increase of water reuse/recycle rate by 2022 compared to 2016 baseline.

### W8.1b

**(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.**

**Goal**

Other, please specify  
Water reuse/recycle % increase

**Level**

Company-wide

**Motivation**

Reduced environmental impact

**Description of goal**

Micron defined a corporate goal to achieve a 10% increase of water reuse/recycle rate by 2022 compared to 2016 baseline.

**Baseline year**

2016

**Start year**

2017

**End year**

2022

**Progress**

Global reuse/recycle rate in CY2018 was almost stable compared to CY2017. Notwithstanding several water savings projects implemented in 2018, the significant



capacity expansions and output increase allowed to keep the rate stable but could not further improve. We expect improvements in the coming years.

## W9. Linkages and trade-offs

### W9.1

**(W9.1) Has your organization identified any linkages or tradeoffs between water and other environmental issues in its direct operations and/or other parts of its value chain?**

Yes

### W9.1a

**(W9.1a) Describe the linkages or tradeoffs and the related management policy or action.**

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**Linkage or tradeoff**

Linkage

**Type of linkage/tradeoff**

Environmental restoration

**Description of linkage/tradeoff**

Micron has been expanding capacity of its operations and more water is needed to support increasing production. By increasing the volume of reuse/recycle water Micron aims to reduce the need to proportionally increase water withdrawal, with a positive impact on local water supplies.

**Policy or action**

## W10. Verification

### W10.1

**(W10.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1d)?**

No, we are waiting for more mature verification standards and/or processes

## W11. Sign off

### W-FI

**(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.**

### W11.1

**(W11.1) Provide details for the person that has signed off (approved) your CDP water response.**

	<b>Job title</b>	<b>Corresponding job category</b>
Row 1	VP of Compliance and Sustainability	Chief Sustainability Officer (CSO)

### W11.2

**(W11.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].**